

Biodiversity Record: Carrying of dead infant by long-tailed macaque

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Subjects: Long-tailed macaque, *Macaca fascicularis* (Mammalia: Primates: Cercopithecidae).

Subjects identified by: Ang Qi Xuan.

Location, date and time: Singapore Island, MacRitchie Reservoir Park; 16 September 2024; around 1805 hrs.

Habitat: Parkland next to secondary forest. Railings along canal and pavement near a concrete building.

Observer: Ang Qi Xuan.

Observation: A lone adult female long-tailed macaque was seen holding a dead infant while sitting on the railings along a canal, about 60 m away from 15 other macaques playing in the shallow waters of the canal. The macaque's bottom was bloody, suggesting that she had recently given birth and is most likely the mother of the dead infant. The dead infant's head was noted to be deformed. The female occasionally licked the dead infant as she sat on the railing (Fig. 1). About one minute later, the macaque got up and clambered along the railing and onto the pavement in the direction of a nearby concrete building that was the public toilet. As she was moving, the subject held onto the dead infant with one hand and adopted a tripedal gait (Fig. 2). The observer then left at 1812 hrs, with the macaque last seen sitting on the pavement clutching the dead infant (Fig. 3).



Fig. 1. Female long-tailed macaque sitting on the railing along a canal while intermittently licking her dead infant. Fig. 2. Macaque holding on to the dead infant while moving along the railing (Photographs by: Ang Qi Xuan).

Remarks: The cause of the infant macaque's death is unknown, but its head deformity suggests that it could have succumbed to an accident (such as being run over by a vehicle), or from male infanticide. The latter occurs when either an arriving male enters the group and takes over as alpha male, or when a low-ranked male within the group displaces the incumbent alpha male (Soltis et al., 2000; Brasington et al., 2017). Incidences of infanticide have been recorded in captive long-tailed macaques (Gielen, 2022); thus, it cannot be ruled out that the infant was attacked by a new alpha male.

Observations of non-human primates exhibiting caretaking behaviour towards their dead infants have been reported by numerous primatologists. Dead infant carrying has been observed in 34 primate species and subspecies, while 11 primate species were reported to display dead infant grooming (Watson & Matsuzawa, 2018; Gonçalves & Carvalho, 2019). The reasoning behind such behaviours is yet to be fully understood, although researchers have proposed several hypotheses (Watson & Matsuzawa, 2018). One of them is the hormonal hypothesis, which is of particular interest since in this observation the infant likely died shortly after birth. This hypothesis suggests that the birth-related hormones that stimulate mother-infant bonding is responsible for the caretaking behaviour displayed by mothers towards their dead infants (Kaplan, 1973).

The duration of carrying varies from species to species, with the shortest being a day and the longest being over 48 days (Watson & Matsuzawa, 2018). Other studies also seem to suggest that the behaviour is not widespread, with roughly 15% of dead infants being carried by the mothers (Sugiyama et al., 2009; Botting & van de Waal, 2020). Similar details of caretaking behaviour in long-tailed macaques are unknown, as the only relevant record was a single local observation of long-tailed macaques protecting a deceased juvenile group member (Riley et al., 2015). Future studies could therefore determine the duration and prevalence of caretaking behaviour towards dead infants within long-tailed macaque colonies.



Fig. 3. Macaque sitting on the pavement while clutching the dead infant (Photograph by: Ang Qi Xuan).

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